

REMARKS

I. Introduction

Claims 6-19 and 21-22 are pending in the present application. Claim 6 has been amended to recite the result of the initial mixture of raw materials and water as potassium hydrogentartrate. Claim 18 has been amended to reflect the same. No new matter has been added. See Specification, page 2 ("a suspension ... consisting of solids and potassium hydrogentartrate dissolved in water."); see *also* page 4, last paragraph. In view of the following remarks, it is respectfully submitted that claims 6-19 and 21-22 are allowable and reconsideration is respectfully requested.

II. Rejection of Claims 6-19, 21-22 Under 35 U.S.C. §103 (a)

Claims 6-19 were rejected under 35 U.S.C. §103(a) as unpatentable over Australian Patent Publication 199926019 ("AU '019") in view of both Kuroda et al. PGPUBS Document US2005/0020853 and the Derwent Abstract for Soviet Union Publication SU 390,067. It is respectfully submitted that these rejections should be withdrawn for at least the following reasons.

To qualify as prior art under 35 U.S.C. §103, a reference must first qualify as prior art under 35 U.S.C. §102. See M.P.E.P. §2142. A publication may qualify under 35 U.S.C. §102(e) by satisfying the following three conditions: (1) the publication has an international filing date on or after November 29, 2000; (2) it must designate the United States; and (3) it must publish under PCT Article 21(2) in English. See M.P.E.P. §2136.03 (emphasis added).

In order for a claim to be rejected for obviousness under 35 U.S.C. § 103(a), the prior art must teach or suggest each element of the claim and also suggest combining the elements in the manner contemplated by the claim. See *Northern Telecom, Inc. v. Datapoint Corp.*, 908 F.2d 931, 934 (Fed. Cir. 1990), *cert. denied* 111 S.Ct. 296 (1990); *In re Bond*, 910 F.2d 831, 834 (Fed. Cir. 1990). A combination may be patentable "whether it be composed of elements all new, partly new or all old." *Rosemount, Inc. v. Beckman Instruments, Inc.*, 727 F.2d 1540, 1546 (Fed.Cir.1984) (internal quotations omitted). Individual references may not be "employed as a mosaic to recreate a facsimile of the claimed invention." *W.L. Gore*

& Assocs., Inc. v. Garlock, Inc., 721 F.2d 1540, 1551 (Fed.Cir.1983). Individual references may not be combined based on the applicants' disclosure. See *id.*; *W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1551 (Fed.Cir.1983).

The Examiner bears the initial burden of establishing a *prima facie* case of obviousness. See M.P.E.P. §2142. In order to do so, the Examiner must show, *inter alia*, that there is some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify or combine the references and that, when so modified or combined, the prior art teaches or suggests all of the claim limitations. See M.P.E.P. §2143. Furthermore, the burden is on the Examiner to explain to the applicants the motivation to combine when it is not immediately apparent. See M.P.E.P. §2142. "The mere fact that the references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination." See M.P.E.P. §2142.

Independent claim 6 recites a process for, *inter alia*, the continuous recovery of free tartaric acid from raw materials containing at least 5.0 wt% potassium hydrogentartrate by mixing the raw materials with water and dissolving potassium hydrogentartrate to form a potassium hydrogentartrate suspension, decanting the suspension to obtain a clarified liquid, subjecting the clarified liquid to microfiltration to form a filtrate, vacuum cooling the microfiltration filtrate to form potassium hydrogentartrate crystals, centrifuging the potassium hydrogentartrate crystals, dissolving the potassium hydrogentartrate crystals in water, removing the potassium from the aqueous potassium hydrogentartrate solution by ion-exchange and forming tartaric acid crystals by evaporation.

AU '019 teaches recovery of tartaric acid from a material containing at least 5 wt.% (as dry wt.) of K hydrogen tartrate (KHT). In this process, the raw materials are admixed via a heated stir tank with aqueous potassium hydroxide solution to form dipotassium tartrate (DKT). Then, impurities are removed from the DKT-containing aqueous solution via centrifuge. The solution is treated with acid at pH 2-5 to give a crystallized-out KHT-containing suspension. (AU '019, pp. 1-2). At this point, water is added to the KHT-containing suspension to form a suspension of potassium hydrogentartrate. It is during this process to form DKT and subsequently crystallize

KHT that the first heated stir tank is used. (AU '019, p. 1). It is also at this point where impurities are removed by centrifuge. (AU '019, p 2). However, the presently claimed process bypasses these steps. The claimed process does not form DKT. Instead, the presently claimed process adds the raw materials containing at least 5.0 wt % potassium hydrogentartrate in dry matter to water directly, thereby dissolving potassium hydrogentartrate to form a suspension of potassium hydrogentartrate, starting the corresponding crystallization process at Step 17 of AU '019. See AU '019 Drawing. Hence, all of the apparatuses prior to this step in AU '019 (Steps 1-17 on the drawing) are irrelevant to the claimed process and apparatuses. See *Northern Telecom, Inc. v. Datapoint Corp.*, 908 F.2d 931, 934 (Fed. Cir. 1990). Therefore, AU '019 discloses neither the use of a centrifuge, nor of a second heated stir tank for recovery of tartaric acid from a material containing at least 5 wt.% (as dry wt.) of K hydrogen tartrate (KHT). Both of these apparatuses are used in AU '019 prior to the beginning of the KHT crystallization process.

Furthermore, the Examiner has stated that the abstract of AU '019 disclosed the use of a decanter. December 19, 2006 Office Action, p. 3. But the abstract states "separating off KHT from the suspension," and, it is respectfully submitted, the separation is accomplished by use of a filter, not a decanter. (AU '019, p. 3 "The solution is charged to a filtration 5, in order to separate a yeast sludge which is withdrawn via line 6."). Therefore, AU '019 does not disclose a decanter. Furthermore, the filter use still occurs in the stage of the process that is bypassed by the presently claimed subject matter, as the asserted prior art is used to remove the yeast sludge prior to treatment of the solution with acid to form KHT crystals.

As the Examiner previously noted, AU '019 also lacks the step of "cooling to crystallization temperature to occur under vacuum." December 19, 2006 Office Action, p. 4. Therefore, AU '019 is missing four elements of the presently claimed subject matter, *inter alia*: the second heated stir tank, the decanter, the centrifuge and the cooling crystallization steps.

In an effort to address the deficiencies in AU '019 as prior art, the Applicants respectfully submit that the Examiner has failed to establish a *prima facie* case of obviousness based on the combination of additional references with AU '019 for three reasons: (1) one of the cited references does not qualify as prior art under

35 U.S.C. §102; (2) there is no motivation to combine these references, and (3) even combined, these references fail to teach each any every element of the presently claimed subject matter.

First, Kuroda et al. does not qualify as prior art under 35 U.S.C. §102(e). The applicants are entitled to priority date of February 26, 2003. See Declaration of Foreign Priority, Initial Application. Kuroda et al. filed their PCT application on January 29, 2003. While they did designate the United States, they filed their application in Japanese. The Japanese application published in Japanese on August 7, 2003, thereby failing to meet the requirements for prior art under 35 U.S.C. §102(e). It should be noted that a sister application did publish in English on January 29, 2003, but failed to designate the United States as one of the Contracting States. Therefore, Kuroda et al. fails to qualify as prior art under 35 U.S.C. §102(e).

Second, there is no teaching in any of these references that would provide a motivation to combine AU Patent Publication 199926019 and SU 390,067. This inquiry is made at or before the time of the invention, not by referring to the application disclosure. See M.P.E.P. §2143. In this case, Applicants respectfully submit that the examiner has provided no motivation to combine the SU 390,067 reference as it discloses a very different process for the recovery of tartaric acid.

Third, neither the Kuroda et al. nor the SU 390,067 references cure the identified deficiencies of AU '019. These references do not disclose the use of any second heated stir tank, a centrifuge, or a decanter. Therefore, even taken in combination, these references do not teach the use of all elements of the presently claimed subject matter. Consequently, they fail to anticipate (much less render obvious) the presently claimed subject matter. See M.P.E.P. 2143. Thus, for at least these three reasons, there is no *prima facie* case of obviousness.

Kuroda et al. (which does not qualify as prior art under §102) discloses a method for producing high purity glycolic acid crystals from an aqueous glycolic acid solution containing monomeric or glycolic acid in the glycolic acid condensation product, wherein the deposition of glycolic acid crystals is performed at a

temperature in the range from -3 to 50°C (para. 36) and by using a vacuum cooling crystallizer (para. 15).

The SU 390,067 reference teaches the production of tartaric acid, wherein the calcium salts of the wine production residues are decomposed with a mineral acid. The purified resulting solution is concentrated by vacuum temperature in the range of 65 to 70°C. After the concentration, the crystallization of tartaric acid is caused by controlled cooling in seven steps, with temperature ranges varying between 2-26°C .

These references merely disclose cooling under a vacuum. They do not disclose the use of a centrifuge, a decanter and/or a second heated stir tank. Therefore, taken alone or in any combination, these references do not teach every limitation of the presently claimed subject matter. The present application does not claim any particular step alone. It is the particular combination of steps and apparatus elements that is claimed.

Because AU '019 in view of Kuroda et al. and/or SU 390,067 fails to teach or suggest all of the elements of claim 6, Applicants respectfully submit that this claim is patentable over AU '019 in view of Kuroda et al. and/or SU 390,067.

As for claims 7-17, which ultimately depend from claim 6, and therefore, include all of the features recited in claim 6, it is respectfully submitted that AU '019 in view of Kuroda et al. and/or SU 390,067 does not render unpatentable these dependent claims for at least the same reasons more fully set forth above in support of the patentability of claim 6.

Claim 18 has been amended, like Claim 6, to recite the result of the initial mixture of raw materials and water as potassium hydrogentartrate.

Because AU '019 is missing at least four elements of the presently claimed subject matter – the second heated stir tank, the decanter, the centrifuge and the cooling crystallization steps – it also lacks the recited components necessary for these steps. These deficiencies are not cured by Kuroda et al. and/or SU 390,067.

As for claims 19 and 21-22, which depend from claim 18, and therefore, include all of the features recited in claim 18, it is respectfully submitted that AU '019

in view of Kuroda et al. and/or SU 390,067 does not render unpatentable these dependent claims for at least the same reasons more fully set forth above in support of the patentability of claim 18.

Accordingly, Applicants respectfully submit that all rejections raised under 35 U.S.C. §103(a) should be withdrawn.

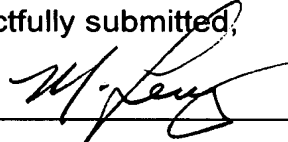
III. Conclusion

In light of the foregoing, Applicants respectfully submit that all pending claims are in condition for allowance. Prompt reconsideration and allowance of the present application are therefore earnestly solicited.

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Respectfully submitted,

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